UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,097	12/01/2003	J. Michael Corrigan	00259P0005US	1762

32116 7590 09/29/2009

WOOD, PHILLIPS, KATZ, CLARK & MORTIMER
500 W. MADISON STREET
SUITE 3800
CHICAGO, IL 60661

EXAMINER	
ALEXANDER, REGINALD	

ART UNIT	PAPER NUMBER
3742	

MAIL DATE	DELIVERY MODE
09/29/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CORRIGAN CORPORATION OF AMERICA

Appeal 2009-003658
Application 10/725,097
Technology Center 3700

Decided: September 29, 2009

Before JAMESON LEE, RICHARD TORCZON, and
MICHAEL P. TIERNEY, *Administrative Patent Judges*.

LEE, *Administrative Patent Judge*.

DECISION ON APPEAL

A. STATEMENT OF THE CASE

This is a decision on appeal by the real party in interest, Corrigan Corporation of America (Corrigan), under 35 U.S.C. § 134(a) from a final

rejection of claims 1-13. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

References Relied on by the Examiner

Karlson	4,517,159	May 14, 1985
Kleinberger et al. (Kleinberger)	5,350,117	Sep. 27, 1994
Denvir et al. (Denvir)	6,120,822	Sep. 19, 2000
Dettling et al. (Dettling)	6,406,006	Jun. 18, 2002

Webster's New World Dictionary 87, 286 (3rd edition 1994)

The Rejections on Appeal

The Examiner rejected claims 1, 5, 9, and 10-13 under 35 U.S.C. § 103(a) as unpatentable over Kleinberger and Denvir.

The Examiner rejected claims 2-4 and 6-8 under 35 U.S.C. § 103(a) as unpatentable over Kleinberger, Denvir, and Karlson.

The Examiner rejected claims 1, 5, 9, 11, and 12 under 35 U.S.C. § 103(a) as unpatentable over Dettling and Denvir.

The Examiner rejected claims 2-4 and 6-8 under 35 U.S.C. § 103(a) as unpatentable over Dettling, Denvir, and Karlson.

The Examiner rejected claims 10 and 13 under 35 U.S.C. § 103(a) as unpatentable over Dettling, Denvir, and Kleinberger.

The Invention

The invention relates to a humidification system for food products where ozone treated air is delivered into the humidification system. (Spec. 1:5-6.)

Claim 1 is reproduced below (App. Br. 13 Claims App'x):

1. In a humidification system including an atomizing nozzle, a water supply and a control selectively supplying pressurized water

from the supply to said atomizing nozzle so that atomized vapor is provided, the improvement comprising:

an ozone generator; and

an air compressor operatively connected between the ozone generator and the atomizing nozzle for delivering pressurized ozone to the atomizing nozzle so that the nozzle delivers ozonated vapor.

B. ISSUES

1. Has Corrigan shown that the Examiner was incorrect in finding that Kleinberger discloses an "atomizing nozzle" and an "air atomizing nozzle"?

2. Has Corrigan shown that the Examiner was incorrect in determining that the combined teachings of Kleinberger and Denvir teach an atomizing nozzle for delivering ozonated vapor in a humidification system?

3. Has Corrigan shown that the Examiner was incorrect in determining that the combined teachings of Dettling and Denvir teach an atomizing nozzle for delivering ozonated vapor in a humidification system?

C. FINDINGS OF FACT

Kleinberger

1. Kleinberger discloses a humidification system for directing a fine mist of air and water droplets through a mist assembly into an enclosed refrigerated compartment in order to humidify and preserve food products within the compartment. (Kleinberger 1:11-50.)

2. Kleinberger's mist assembly includes a "mist nozzle" that produces a fine mist. (*Id.* at 5:61-5.)

3. Kleinberger's mist nozzle includes air inlets 124 that allow air to enter and flow through the mist nozzle in order to vary the amount of fine mist produced. (*Id.* at 12:67-13:12.)

4. Kleinberger discloses that in its preferred embodiment air from other sources, *i.e.*, air other than ambient air, is not supplied to its mist assembly. (*Id.* at 13:13-34.)

5. Kleinberger discloses in alternate embodiments, air from other sources is supplied to the mist assembly. (*Id.* at 13:35-44.)

6. The air from those other sources is additional to the ambient air supplied to the air inlets and acts to assist in "pushing" the ambient air and mist within mist chamber 54. (*Id.*)

Denvir

7. Denvir discloses a system for decontamination and preservation of food products. (Denvir 1:11-13).

8. In Denvir, ozone containing gas under controlled humidity is supplied to a treatment chamber containing the contaminated product or product to be preserved. (*Id.* at 8:23-32.)

9. Denvir also discloses that (*Id.* at 9:31-35.)

> Prior to use in the treatment chamber, the ozone containing gas may be passed through a humidifier where it may take up moisture. Moisture content of the ozone gas used for treating mycotoxins may range from 0% to 100%, depending on the type of treatment.

10. Denvir discloses one embodiment of its invention in which a pump is used to deliver ozone to a treatment chamber. (*Id.* 13:17-20.)

11. Denvir discloses another embodiment in which the pump is termed an ozone blower. (*Id.* at 15:19-25.)

12. In describing that embodiment, Denvir discloses that the ozone blower "may optionally be substituted with or coupled to a gas compressor." (*Id.* 15:27-30.)

Dettling

13. Dettling discloses a system for extending the life of perishable food products using automated humidification systems. (Dettling 1:9-11.)

14. In Dettling, pressurized air and pressurized water are supplied to an atomization nozzle assembly 28. (*Id.* at 6:44-64.)

D. PRINCIPLES OF LAW

During examination, claim terms are given their broadest reasonable interpretation consistent with the specification. *In re Prater*, 415 F.2d 1393, 1404 (CCPA 1969).

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *Id.*

Non-obviousness cannot be shown by attacking a prior art reference individually when a rejection is based on the combined teachings of multiple references. *Id.* at 426.

A combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

E. ANALYSIS

The Examiner rejected claims 1, 5, 9, and 10-13 as unpatentable over Kleinberger and Denvir and claims 2-4 and 6-8 as unpatentable over Kleinberger, Denvir, and Karlson. Alternatively, the Examiner rejected: (1) claims 1, 5, 9, 11, and 12 as unpatentable over Dettling and Denvir; (2) claims 2-4 and 6-8 as unpatentable over Dettling, Denvir, and Karlson; and (3) claims 10 and 13 as unpatentable over Dettling, Denvir, and Kleinberger.

The rejections including Kleinberger as the primary reference

Claims 1, 5, and 11 are independent claims. Claims 2-4, 6-8, 10, and 13 are dependent on one of those independent claims. The patentability of dependent claims 2-4, 6-8, 10 and 13 is not argued apart from the patentability of claims 1, 5, and 11. Dependent claims 9 and 12 are separately argued.

Claims 1-8, 10, 11, and 13

Claim 1 requires "an atomizing nozzle." Claim 5 requires "an air atomizing nozzle." Claim 11 requires "a plurality of air atomizing nozzles." The Examiner found that the atomizing nozzle called for in each of claims 1, 5, and 11 is met by Kleinberger's element 40. (Ans. 3:7-9.)

Corrigan first contends that the term "atomizing nozzle" requires a nozzle that receives pressurized air. (App. Br. 5:2-3.) Corrigan argues that, in Kleinberger, element 40 is disclosed as a misting assembly that uses only pressurized water and not pressurized air to produce a mist. (*Id.* at 6:8-9.) In particular, Corrigan contends that the air used in Kleinberger's misting assembly is ambient air and not pressurized air. (*Id.* at 5:14-15.) Corrigan

thus contends that Kleinberger does not disclose the atomizing nozzle required by the claims.

During examination, claim terms are given their broadest reasonable interpretation consistent with the specification. *In re Prater*, 415 F.2d at 1404. Here, Corrigan's specification does not specially define the term "atomizing nozzle." The Examiner pointed to the ordinary meaning of "atomize" as "to reduce (a liquid) to a fine spray."[1] The Examiner reasoned that in light of that meaning, an atomizing nozzle does not require pressurized air. The Examiner concluded that Kleinberger's misting assembly is an atomizing nozzle because it produces a fine water vapor. (Ans. 6:17-20.)

The Examiner's interpretation of "atomizing nozzle" is neither unreasonable nor inconsistent with Corrigan's specification. There is nothing explicit or intrinsic to the term "atomizing nozzle" that mandates that it operate with pressurized air. Kleinberger's misting assembly is disclosed as including a "mist nozzle" that produces a fine mist. (Kleinberger 5:61-5.) Given that "atomize" means reducing a liquid to a fine spray, a mist nozzle that reduces water to a fine mist is an atomizing nozzle. Corrigan did not direct us to any objective evidence, such as expert testimony, establishing that the term "atomizing nozzle" has an alternative definition requiring pressurized air. Corrigan's assertion that it does is simply argument of counsel which cannot take the place of evidence lacking in the record. *Estee Lauder Inc. v. L'Oreal, S.A.*, 129 F.3d 588, 595 (Fed. Cir. 1997).

---

[1] From page 87 of *Webster's New World Dictionary* (3rd edition 1994) mailed April 15, 2008.

Furthermore, Corrigan does not explain why an "air" atomizing nozzle is not simply an atomizing nozzle in which air flows through the nozzle. The term "air atomizing nozzle" does not require that the air be pressurized. Kleinberger's mist nozzle includes air inlets 124 that allow air to enter and flow through the mist nozzle in order to vary the amount of fine mist produced. (Kleinberger 12:67-13:12.) Kleinberger's mist nozzle is also an air atomizing nozzle.

Corrigan further argues that Kleinberger teaches away from using pressurized air with its misting assembly. The argument, however, is misplaced as the claims do not require the application of pressurized air.

Also in support of that argument, Corrigan points to a portion of Kleinberger describing that in a preferred embodiment of its invention, air from other sources, *i.e.*, air other than ambient air, is not supplied to the mist assembly. (App. Br. 5:13-24.) But, Corrigan does not address alternative embodiments which add air from other sources for "pushing" the ambient air. Such alternative embodiments are described in Kleinberger at column 13 lines 35-44 and indicate the presence of pressurized air.

Corrigan also contends that there is no basis for combining the systems of Kleinberger and Denvir. (App. Br. 5:4-5.)

The Examiner relied on Denvir as showing an ozone generator and air pump that delivers pressurized ozone to a food product containment vessel. (Ans. 3:14-17.) The Examiner determined that it would have been obvious to one with ordinary skill in the art to modify Kleinberger's food product humidification system with the mechanisms disclosed in Denvir for generating a pressurized ozone flow to sterilize the food products. (*Id.* at 3:18-20.)

Corrigan argues that (App. Br. 5:5-7):

> At most the systems [of Kleinberger and Denvir] could be used side by side so that one provides water mist and the other ozone. However, there is no disclosure or suggestion of combining the two to produce ozonated vapor using an atomizing nozzle.

Corrigan's argument is unpersuasive. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. *In re Keller*, 642 F.2d at 425. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *Id.* A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton. *KSR Int'l Co. v. Teleflex Inc.,* 550 U.S. 398, 421 (2007).

In this case, Kleinberger discloses a humidification system for directing a fine mist of air and water droplets through an atomizing nozzle into an enclosed refrigerated compartment in order to humidify and preserve food products within the compartment. (Kleinberger 1:11-50.) The mist operates to establish desired humidity levels without causing moisture to settle on the food products. (*Id.* at 2:29-34.) Denvir discloses a system for decontamination and preservation of food products. (Denvir 1:11-13). In Denvir, ozone containing gas under controlled humidity is supplied to a treatment chamber containing the contaminated product or product to be preserved. (*Id.* at 8:23-32.)

The level of skill in the food preservation art is such one with ordinary skill would have recognized that humidifying and preserving food products by injecting a water vapor mist, as Kleinberger does, can be supplemented

with injecting of ozone containing gas for decontaminating and preserving food products by injecting humidified ozone containing gas, as Denvir does. Using them together merely combines known methods for their known use to achieve a predictable result, which indicates obviousness. *See KSR Int'l Co.,* 550 U.S. at 416 (2007).

Furthermore, a person of ordinary skill and creativity would have realized that an atomizing nozzle that supplies food preserving fluid, such as Kleinberger's mist, would also adequately operate to deliver a mixture of that mist and another food preserving fluid, such as the humidified ozone containing gas taught in Denvir. Corrigan's assertion that, when combined, the references teach only delivery systems that operate side by side presumes little skill and no creativity on the part of one of ordinary skill in the art. Corrigan does not explain why a skilled artisan would not have recognized that all of the food preserving fluids disclosed by the combined teachings of the references could be injected into a chamber through one atomizing nozzle.

Lastly, Corrigan argues that the Examiner incorrectly equated a pump disclosed in Denvir with the air compressor required by claims 1, 5, and 11. According to Corrigan, Denvir discloses only a pump that moves air and not a compressor that compress air. (App. Br. 6:9-11.)

We need not determine whether a pump is also a compressor. Instead, we simply look to the express disclosure of Denvir regarding compressors. Denvir discloses embodiments of its invention in which a pump or a blower is used to deliver ozone to a treatment chamber. (Denvir 13:17-20; 15:19-25.) Denvir also discloses that an ozone blower "may optionally be substituted with or coupled to a gas compressor." (*Id.* 15:27-30.) Thus,

Denvir teaches that a gas compressor may be substituted for a blower and used to deliver pressurized ozone in its treatment system. We reject Corrigan's argument that Denvir does not disclose a compressor as required by claims 1, 5, and 11.

For all the foregoing reasons, we sustain the rejection of claims 1, 5, and 11 as unpatentable over Kleinberger and Denvir. We also sustain the rejection of claims 9, 10, 12, and 13 as unpatentable over Kleinberger and Denvir and claims 2-4 and 6-8 as unpatentable over Kleinberger, Denvir, and Karlson.

Claims 9 and 12

Claim 9 is dependent on claim 5 and adds the limitation "wherein the air atomizing nozzle delivers ozonated air into the product holding space when the pressurized water is not being supplied." (App. Br. 14 Claims App'x.) Claim 12 is dependent on claim 11 and adds the limitation "wherein the air atomizing nozzles deliver ozonated air into the product holding space when the pressurized water is not being supplied." (App. Br. 16 Claims App'x.)

In rejecting claim 9 and 12 over Kleinberger and Denvir, the Examiner determined that (Ans. 4:1-3):

> In regards to claims 9 and 12, there is presented no structural arrangement described therein. It is apparent in the prior art that if water is not supplied to the nozzle, the nozzle would only deliver the ozonated air which is being supplied.

In arguing claims 9 and 12, Corrigan states (App. Br. 8:13-17):

> To the extent Kleinberger uses air, it does so using ambient air. It does not receive pressurized air, and thus pressurized ozone. If the control in Kleinberger were turned off, the nozzle would be

> inoperable. The nozzle would not deliver any mist. The nozzle itself would certainly not deliver ozonated air into the product holding space. Thus, claim 9 and similarly claim 12, are not obvious for this reason as well.

Corrigan's argument is misplaced. Nothing in the claims requires a control element, much less one that selectively shuts off a flow of water while maintaining a flow of ozonated air. The claims do not require that water not be supplied. Rather, the claims simply require that when, hypothetically, water is not supplied for whatever reason, then ozonated air is delivered to the holding space. That is the case with the combined teachings of Kleinberger and Denvir, which lead to an atomizing nozzle supplying water and ozonated air. In the absence of a water supply, *e.g.*, water utility runs dry, what is left is ozonated air. Corrigan's argument improperly depends on control element features which are not in the claims.

We sustain the rejection of claims 9 and 12 as unpatentable over Kleinberger and Denvir.

The rejections including Dettling

We turn now to the Examiner's alternative rejections based on Dettling. The Examiner rejected: (1) claims 1, 5, 9, 11, and 12 as unpatentable over Dettling and Denvir; (2) claims 2-4 and 6-8 as unpatentable over Dettling, Denvir, and Karlson; and (3) claims 10 and 13 as unpatentable over Dettling, Denvir, and Kleinberger. The patentability of dependent claims 2-4, 6-8, 10 and 13 is not argued apart from the patentability of claims 1, 5, and 11. Dependent claims 9 and 12 are separately argued.

Claims 1-8, 10, 11, and 13

Each of claims 1, 5, and 11 require a water supply for supplying pressurized water to an atomizing nozzle and an air compressor that delivers pressurized ozone from an ozone generator to the atomizing nozzle. The Examiner relied on Dettling as disclosing a humidification system for a display case having a pressurized water supply and an air compressor. (Ans. 4:14-18.) The Examiner pointed to Denvir as disclosing an ozone generator and a pump that operates as a compressor for delivering ozone to a food product containment vessel. (*Id.* at 4:18-22.) The Examiner reasoned that "[i]t would have been obvious to one skilled in the art to provide the system of Dettling with the ozone generator taught in De[n]vir, in order to sterilize as well as humidify food products presented in the display case." (*Id.* at 5:1-3.)

Corrigan contends that Denvir discloses only a pump for moving gas and not a compressor that pressurizes the ozone gas. (App. Br. 9:17-10:2) Corrigan submits that Denvir's ozone delivery system would not be used with a system having a compressor, such as in Dettling, because Denvir teaches away from using a compressor that would pressurize the ozone gas in its ozone delivery system. (App. Br. 10:8-20; Reply Br. 3:18-4:20.)

We reject Corrigan's teaching away argument. As noted above, Denvir discloses an embodiment of its invention in which an ozone blower or pump that delivers ozone gas in its treatment system is "substituted with or coupled to a gas compressor." (Denvir 15:27-30.) Thus, Denvir expressly discloses an embodiment of its invention in which a gas compressor is used to deliver ozone gas. Moreover, Denvir desires to prevent "over-pressurizing" of its treatment chamber with ozone. (*Id.* at

9:44-45.) That is not a teaching away from using pressurized ozone gas. It simply means that Denvir regards too much pressure in the treatment chamber as undesirable. Indeed, that "over-pressurizing" the treatment chamber with ozone gas is a concern at all means that the ozone gas entering the chamber is pressurized.

Corrigan also argues that (Reply Br. 4:21-23):

> Denvir is specifically dealing with ozone treatment of dry contaminated material. Thus, Denvir is specifically relying on treatment with ozone gas, not ozonated vapor.

The argument is not understood. The Examiner did not rely on Denvir for supplying vapor. One cannot attack a prior art reference individually when the rejection is based on the combined teachings of multiple references. *In re Keller*, 642 F.2d at 426. In any event, Denvir discloses humidifying its supply of ozone gas. Specifically, Denvir states (*Id.* at 9:31-35.)

> Prior to use in the treatment chamber, the ozone containing gas may be passed through a humidifier where it may take up moisture. Moisture content of the ozone gas used for treating mycotoxins may range from 0% to 100%, depending on the type of treatment.

Corrigan does not explain why an ozone gas supply with a moisture of content of up to 100% does not itself constitute ozonated vapor. We think it does.

For the foregoing reasons, we sustain the rejection of claims 1, 5, and 11 as unpatentable over Dettling and Denvir. We also sustain the rejection of claims 2-4 and 6-8 as unpatentable over Dettling, Denvir, and Karlson and the rejection of claims 10 and 13 as unpatentable over Dettling, Denvir, and Kleinberger.

Claims 9 and 12

As noted above, claim 9 and 12 are dependent on claims 5 and 11, respectively, and each adds a limitation directed to delivering ozonated air to a product holding space when pressurized water is not supplied.

The Examiner rejected claims 9 and 12 over Dettling and Denvir. In arguing the rejection, Corrigan states (App. Br. 11:7-9):

> In Dettling, when the system is turned off the compressor does not operate. The nozzle itself would certainly not deliver ozonated air into the product holding space. Thus, claim 9 and similarly claim 12, are not obvious for this reason as well.

Corrigan's argument is misdirected. Nothing in the claims requires a control element that shuts off the water supply but not the compressor. The combined teachings of Dettling and Denvir lead to a nozzle that directs ozonated air and water to a product holding space. In the absence of a water supply, hypothetically and for whatever reason, *e.g.*, clogged water pipe, what is left is just ozonated air. Corrigan's argument improperly depends on control features which are not in the claims.

We sustain the rejection of claims 9 and 12 as unpatentable over Dettling and Denvir.

F. CONCLUSION

1. Corrigan has not shown that the Examiner was incorrect in finding that Kleinberger discloses an "atomizing nozzle" and an "air atomizing nozzle."

2. Corrigan has not shown that the Examiner was incorrect in determining that the combined teachings of Kleinberger and Denvir teach an atomizing nozzle for delivering ozonated vapor in a humidification system.

3. Corrigan has not shown that the Examiner was incorrect in determining that the combined teachings of Dettling and Denvir teach an atomizing nozzle for delivering ozonated vapor in a humidification system.

G. ORDER

The rejection of claims 1, 5, 9, and 10-13 under 35 U.S.C. § 103(a) as unpatentable over Kleinberger and Denvir is affirmed.

The rejection of claims 2-4 and 6-8 under 35 U.S.C. § 103(a) as unpatentable over Kleinberger, Denvir, and Karlson is affirmed.

The rejection of claims 1, 5, 9, 11, and 12 under 35 U.S.C. § 103(a) as unpatentable over Dettling and Denvir is affirmed.

The rejection of claims 2-4 and 6-8 under 35 U.S.C. § 103(a) as unpatentable over Dettling, Denvir, and Karlson is affirmed.

The rejection of claims 10 and 13 under 35 U.S.C. § 103(a) as unpatentable over Dettling, Denvir, and Kleinberger is affirmed.

AFFIRMED

saw

WOOD, PHILLIPS, KATZ, CLARK & MORTIMER
500 W. MADISON STREET
SUITE 3800
CHICAGO, IL 60661